

AMENDMENTS TO THE SPECIFICATION

Please replace the present title with the following amended title:

SIGNAL TRANSMITTING DEVICE FOR STEERING COLUMN ASSEMBLY

Please replace the paragraph no. 2 on page 1 with the following amended paragraph:

The present invention relates to a signal transmitting device for steering column assembly which serves to connect ~~an auxiliary machinery components~~ on the steering wheel side (for example, an air bag device) to a wire harness on the vehicle body side.

Please replace the paragraph no. 4 on page 1 with the following amended paragraph:

A combination switch to be attached to a steering column assembly of an automobile and a signal transmitting device for the steering column assembly which is fixed into the steering column assembly and is intended for supplying power or signals to an electronic apparatus such as an air bag have been provided separately from each other and have been assembled in the manufacturing line of automobile manufactures or part manufactures. In recent years, the steering wheel of an automobile has been provided with an air bag and various switches in addition to a horn, and ~~a space in the steering wheel has been set in a hard situation~~ limited due to

the elements such as a switch apparatus, the combination switch and the signal transmitting device for a steering column assembly(~~spiral cable~~).

Please replace the paragraph no. 1 on page 2 (bridging pages 1 and 2) with the following amended paragraph:

There has been proposed a signal transmitting device for a steering to supply power or signals to an auxiliary machinery on the rotating steering wheel side which has such a structure that canceller portion is added to a rotor part as is disclosed in JP-A-10-241504 shown in Fig. 4, for example. As shown in Fig. 4, a signal transmitting device 1 for a steering column assembly is accommodated in an annular concave portion 3 formed in a column 2. Both side surfaces of the column 2 are provided with a pair of connector accommodating portions 4 and 5. Attached To the connector accommodating portions 4 and 5 are ~~attached~~ connector portions 6A and 7A, which are formed on base ends of a turn signal lever 6 and a wiper control switch lever 7 ~~which~~ and act as lever units.

Please replace the paragraph no. 2 on page 2 with the following amended paragraph:

The signal transmitting device 1 for the steering column assembly has an outer cylinder (under cover) 8 and an inner cylinder 9 to be rotated on the inside of the outer cylinder 8. A

cable, which is not shown, is spirally accommodated between the outer cylinder 8 and the inner cylinder 9. A leading portion 11 for leading one end 10A of a cable to the outside is formed on the outer cylinder 8. The inner cylinder 9 is fixed to an outer periphery of a steering shaft and is rotated together with the steering shaft. A base plate portion 13 is formed integrally to be protruded from an upper surface of an upper lid 12 that is formed integrally with the inner cylinder 9.

Please replace the paragraph no. 3 on page 2 (bridging pages 2 and 3) with the following amended paragraph:

An upper surface of the base plate portion 13 acts as an abutting face 13A where a steering wheel is to be fixed. A part of a circumferential portion is removed so that a press face (canceller portion) 14 ~~to be erected~~ oriented perpendicularly to the upper surface in a radial direction of the inner cylinder 9 is formed in the base plate portion 13. The canceller portion 14 is rotated integrally with the inner cylinder 9 through return rotation of the steering wheel, thereby abutting on a return portion (cancel cam) 15 of a turn signal cancel mechanism. Consequently, the turn signal lever 6 is returned to a neutral position.

Please replace the paragraph no. 2 on page 3 (bridging pages 3 and 4) with the following amended paragraph:

For example, other signal transmitting devices for a steering column assembly have ~~been~~are shown in Fig. 5 and have been disclosed in JP-A-11-191346. In a signal transmitting device 21 for a steering column assembly shown in Fig. 5, an inner cylinder 23 is rotatably attached to an outer cylinder 22 and a cable which is not shown is accommodated spirally in an annular space formed therein. A cancel cam 24 is protruded integrally from an outer peripheral surface of the inner cylinder 23. The outer cylinder 22 is screwed to the column side by inserting a screw through a hole 25A formed in a fixing portion 25. A lever unit such as a turn signal lever is attached to the signal transmitting device 21 for a steering column assembly in a direction of an arrow A, for example. The cancel cam 24 is rotated together with the steering wheel (not shown) of the steering column assembly in a direction of an arrow B (or a reverse direction to the B direction) in the ~~drawing-figure~~ with respect to a return portion cancel portion) provided in a lever unit. Consequently, the return portion is repelled with the cancel cam 24 to return the lever unit to neutral position.

Please replace the paragraph no. 2 on page 4 with the following amended paragraph:

In the respective signal transmitting devices for steering column assemblies, there is a possibility that dust might enter the periphery of the canceller portion or the cancel cam.

Consequently, ~~there might be generated a disadvantage that residue is~~may disadvantageously be accumulated in a passage of the canceller portion or the cancel cam, thereby resulting in ~~the difficulty disrupting of~~ the cancel function.

Please replace the paragraph no. 3 on page 4 with the following amended paragraph:

Moreover, In the signal transmitting device for a steering column assembly having the structure shown in Fig. 5, ~~moreover,~~ when a state in which a user intentionally locks a lever (turn signal lever) (a load to be applied to the canceller portion 14 or the cancel cam 24 is lever locked) is generated, there is a possibility that strain and deformation might be caused on the inner cylinders 9 and 23, resulting in breakage of these units.

Please replace the paragraph no. 5 on page 4 (bridging pages 4 and 5) with the following amended paragraph:

Therefore, it is an object of the invention to provide a signal transmitting device for a steering column assembly that can prevent degradation and breakage of a unit to which a signal transmitting device for a steering column assembly is attached and can prevent residue from entering a cancel function portion, thereby causing which might otherwise result in deactivation of the cancel function.

Please replace the paragraph no. 2 on page 5 with the following amended paragraph:

A first aspect of the invention: is directed to a signal transmitting device for a steering column assembly including: a body portion;

an upper case rotatably provided in the body portion;

a cable spirally accommodated in an annular housing formed between the body portion and the upper case, one end of the cable being led from the body portion, the other end of the cable being led from the upper case;

a side wall having a predetermined height formed on the body portion to surround the upper case;

a window portion, for receiving a cancel portion of a cancel mechanism, formed at a part of the side wall;

a cancel cam, for pressing the cancel portion with return rotation of the steering column assembly, provided at outer periphery of the upper case; and

a flange portion formed integrally with an outer peripheral surface of the upper case and an upper portion of the cancel cam.

Please replace the paragraph no. 3 on page 5 (bridging pages 5 and 6) with the following amended paragraph:

According to the invention having such a structure, the side wall erected on the body portion and the flange portion formed on the peripheral surface of the upper case function as dust prevention walls and can prevent refuse from entering a passage of the cancel cam. Thus, it is possible to prevent the refuse from entering ~~to and thereby disturb~~ interfering with the operation of the cancel cam ~~when the signal transmitting device for steering is to be assembled or after vehicle loading~~. Consequently, it is possible to enhance reliability of the signal transmitting device for a steering column assembly.

Please replace the paragraph no. 2 on page 6 with the following amended paragraph:

In the invention, moreover, a mechanical strength of the upper case can be increased by the flange portion. For example, ~~therefore, also even~~ in the case in which a user intentionally locks the turn signal lever to apply an excessive load to the cancel cam, it is possible to prevent strain from being generated on the upper case ~~to~~ which would cause deformation of the upper case, and furthermore, to prevent the upper case from being broken.

Please replace the paragraph no. 4 on page 6 with the following amended paragraph:

According to the invention, therefore, it is possible to more enhance the function of preventing refuse from entering the steering column assembly according to the first aspect of the invention.

Please replace the paragraph no. 2 on page 7 with the following amended paragraph:

Fig. 1 is an exploded perspective view showing a signal transmitting device for a steering column assembly according to an embodiment of the invention,

Fig. 2 is a front view showing the signal transmitting device for a steering column assembly according to the embodiment.

Fig. 3 is a partially sectional side view showing the signal transmitting device for a steering column assembly according to the embodiment.

Fig. 4 is an exploded perspective view showing a related signal transmitting device for a steering column assembly.

Fig. 5 is a perspective view showing the related signal transmitting device for a steering column assembly.

Please replace the paragraph no. 4 on page 7 (bridging pages 7 and 8) with the following amended paragraph:

The details of a signal transmitting device for a steering column assembly according to the invention will be described based on an embodiment with reference to the drawings. Fig. 1 is an exploded perspective view showing a signal transmitting device for a steering column assembly according to the embodiment, Fig. 2 is a front view showing the signal transmitting device for a steering column assembly according to the embodiment, and Fig. 3 is a partially sectional side view showing the signal transmitting device for a steering column assembly.

Please replace the paragraph no. 2 on page 8 with the following amended paragraph:

As shown in Fig. 1, a signal transmitting device 30 for a steering column assembly according to the embodiment comprises: a body portion 31 to be fixed to the column side; an upper case 32 rotatably provided in the body portion 31; and a spiral cable 29 to be spirally accommodated in an annular internal space formed by the body portion 31 and the upper case 32.

Please replace the paragraph no. 4 on page 8 (bridging pages 8 and 9) with the following amended paragraph:

A fixing bracket portion 39, to which a wiper lever unit 38 is to be attached, is provided in an substantially opposite position to the fixing bracket portions 34 and 35 over the outer side surface of the body portion 31 as shown in Figs. 2 and 3.

Please replace the paragraph no. 2 on page 9 with the following amended paragraph:

A side wall 31B having a predetermined height is integrally formed as an annulus ring rising wall on an upper surface of the body portion 31 to surround a peripheral surface of the upper case 32 to be assembled. As shown in Fig. 1, a window portion 31C having a portion of the side ~~wail-wall~~ 31B taken away ~~removed~~ is formed on the side wall 31B in a position where the turn signal lever 36 is to be attached. A cancel portion 42 of the turn signal lever 36, which will be described below, can be protruded from the same portion toward the inside of the side wall 31B.

Please replace the paragraph no. 3 on page 9 (bridging pages 9 and 10) with the following amended paragraph:

As shown in Figs. 2 and 3, an end face of the connecting portion 37 of the turn signal lever 36 is provided with the cancel portion 42 for being ~~pressed~~engaged in order to return the turn signal lever 36 into a neutral position. The cancel portion 42 is urged in such a direction as to be protruded toward the outside of the end face through a spring member (not shown).

Please replace the paragraph no. 2 on page 10 with the following amended paragraph:

One end 29A of the spiral cable 29 for signal transmission which is accommodated in the signal transmitting device 30 for a steering column assembly is led from the body portion 31. The end 29A is connected to the turn signal lever 36 and the wiper lever unit 38. The other end 29B of the spiral cable 29 is connected to a connector 43 ~~protruded~~protruding from an upper surface of the upper case 32. The connector 43 is connected to an air bag or various switches on the steering wheel side, for example.

Please replace the paragraph no. 3 on page 10 (bridging pages 10 and 11) with the following amended paragraph:

In a state in which the upper case 32 is provided in the body portion 31, the side wall 31B surrounds the cancel cam 40 and the flange portion 41 to be accommodated therein as shown in Fig. 3. A height of the side wall 31B is set to be equal to or greater than that of the position where the flange portion 41 is formed at the upper case 32. Therefore, the flange portion 41 and the side wall 31B function as dust entering prevention walls and can prevent dust from entering a passage of the cancel cam 40. In particular, the dust can be prevented from entering when the signal transmitting device 30 for a steering column assembly is to be assembled or after vehicle loading. Therefore, the operation of the cancel cam 40 can be prevented from being disturbed by the refuse so that reliability of the signal transmitting device 30 for a steering column assembly can be enhanced.

Please replace the paragraph no. 2 on page 11 with the following amended paragraph:

If the height of the side wall 31B is smaller than that of the position where the flange portion 41 is formed at the upper case 32, ~~the dust enters slightly easily.~~

Please replace the paragraph no. 2 on page 12 with the following amended paragraph:

According to the present invention, the side wall erected on the body portion and the flange portion formed on the peripheral surface of the upper case function as the dust entering prevention walls and can prevent refuse from entering the passage of the cancel cam. Thus, it is possible to prevent the refuse from entering ~~to~~ and disturbing the operation of the cancel cam when the signal transmitting device for a steering is to be assembled or after vehicle loading. Consequently, it is possible to obtain an effect that the reliability of the signal transmitting device for a steering column assembly can be enhanced.

Please replace the paragraph no. 3 on page 12 with the following amended paragraph:

According to the present invention, it is possible to ~~more~~ enhance the effect of preventing ~~the~~ refuse from entering which is the advantage of the first aspect of the invention. Thus, durability of the signal transmitting device for a steering can be enhanced.